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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,334	01/15/2004	James R. Gallivan	PD-02W167	6419
7590	01/17/2006		EXAMINER TRIEU, VAN THANH	
Thomas J. Finn Raytheon Company P.O. Box 902 (EO/E4/N119) EL SEGUNDO, CA 90245-0902			ART UNIT 2636	PAPER NUMBER

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

(a)

Office Action Summary	Application No.	Applicant(s)
	10/758,334	GALLIVAN ET AL
	Examiner	Art Unit
	Van T. Trieu	2636

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 23 November 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 2-4,8,9,12,13,16,23-25 and 27 is/are allowed.
- 6) Claim(s) 1,5-7,11,14,15,17-22,28 and 29 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/23/05</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1, 5, 7, 11, 14, 15, 17, 22, 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Butler** [US 6,950,021] in view of **Uematsu et al** [US 6,130,640].

Regarding claim 1, the claimed area protection system comprising an active-array antenna to generate a high-power millimeter wave (MMW) wave-front to detect an intruder within a protected area (the multiple, two-segment millimeter beams formed by a high-resolution radar antenna 8 for detecting of intruders within an area, see Figs. 1-5,

col. 3, lines 20-31 and col. 6, lines 50-65); and one or more reflectors positioned within the protected area to help retain energy of the wave-front within the area (the plurality of reflectors 9 and 13, see Fig. 2, col. 3, lines 48-67 and col. 7, lines 1-15); but **Butler** fails to disclose the active array antenna comprises a plurality of active array elements, each including a power amplifier and a transmit antenna. However, **Butler** teaches that the modulator 100, digital controlled oscillator 101, coupler 110 and circulator 111 comprises transmitter 118 portion of the radar to provide functions of generating and modulating the electromagnetic wave energy of multiple or two-segment millimeter beams to the radar antenna 8, see Fig. 9, col. 19, lines 56-62. **Uematsu et al** suggests that a radar module 10 comprises a plurality of planar array antenna elements 12a-12p coupled to selective transmission amplifiers 15a-15p through respective circulators 14a-14p, see Fig. 1, col. 3, lines 61-67, col. 4, lines 1-14, col. 6, lines 10-42, col. 9, lines 51-67 and col. 10, lines 1-41. Therefore, it would have been obvious to one skill in the art at the time the invention was made to substitute the plurality of planar array antenna elements of **Uematsu et al** for the radar antenna of **Butler** in order to allow of scanning a relative large angular range with a scanning beam and to minimize of detection errors and false alarms.

Regarding claim 5, the claimed one or more reflectors are positioned to increase an energy density of the wave-front in a predetermined location of the area, see Figs. 1 and 4-6.

Regarding claim 7, all the claimed subject matters are discussed between **Butler** and **Uematsu et al** in respect to claim 1 above.

Regarding claim 11, all the claimed subject matters are discussed between **Butler** and **Uematsu et al** in respect to claim 7 above, and including the beam director (the direction segments of beams, see Figs. 2 and 4-6, col. 3, lines 58-63 and col. 14, lines 28-40).

Regarding claim 14, all the claimed subject matters are discussed between **Butler** and **Uematsu et al** in respect to claim 1 above.

Regarding claim 15, all the claimed subject matters are cited in respect to claim 14 above, and including the radar illumination, see Figs. 1-8.

Regarding claim 17, the claimed passive detection subsystem comprises one of an IR sensor, an optical sensor, a sonic sensor or an ultrasonic sensor to detect the presence of the intruder, which reads upon the IR and/or ultrasonic wave may be adapted (the electronic walls or fences for intruder detection have used micrometer, millimeter or infrared wavelengths in the electromagnetic spectrum, see col. 1, lines 57-67 and col. 2, lines 1-7.

Regarding claim 22, the method claimed limitations are discussed between **Butler** and **Uematsu et al** in the apparatus claim 1 above.

Regarding claim 26, all the claimed subject matters are discussed between **Butler** and **Uematsu et al** in respect to claims 11 and 22 above.

Regarding claim 28, all the claimed subject matters are discussed between **Butler** and **Uematsu et al** in respect to claims 14, 15 and 22 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 6, 18-21 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Butler** and **Uematsu et al** and further in view of **Foss et al** [US 4,654,622].

Regarding claim 6, **Butler** fails to disclose the array antenna comprises a plurality of semiconductor wafers arranged together on a substantially flat surface, wherein each semiconductor wafer comprises power amplifier and a transmit antenna to generate the high-power wave-front. However, the combination of the planar array antenna elements between **Butler** and **Uematsu et al** wherein the MMIC package of FM radar module comprises a planar array antenna elements 12 having respective feeder lines, a plurality of monolithic microwave integrated circuits mounted on the surface of the dielectric substrate 11 or 101, 102, 103, 105 and 130, see Fig. 1, 2 and 8-11, col. 3, lines 61-67, col. 4, lines 1-36, col. 6, lines 59-67, col. 7, lines 1-8, col. 10, lines 61-67, col. 11, lines 1-67 and col. 12, lines 1-30. **Foss et al** suggests that a planar array antenna comprising a plurality of micro-sensors 13 for millimeter-wave sensing deposited on the surface of the silicon wafer 10. The planar array antenna also includes a bipolar pre-amp array 30 and an FET multiplexer 31, see Figs. 2a, 2b4 and 6, col. 1, lines 7-23, col. 2, lines 25-66. Therefore, it would have been obvious to one skill in the art at the time the invention was made to substitute the silicon wafer of planar array antenna of **Foss et al** for the substrate of planar array antenna of **Butler** and **Uematsu et al** since both antennas are for radiating and sensing of reflected signals in millimeter-wave band and formed with integrated circuits.

Regarding claims 18-21, all the claimed subject matters are discussed between **Butler** and **Uematsu et al** and **Foss et al** in respect to claims 6 and 7 above.

Regarding claims 29, all the claimed subject matters are discussed between **Butler** and **Uematsu et al** and **Foss et al** in respect to claims 5, 6 and 22 above.

Response to Arguments

3. Applicant's arguments filed on 23 November 2005 have been fully considered but they are not persuasive. Because the amended of "an active array antenna comprises a plurality of active array elements, each including a power amplifier and a transmit antenna", an update search was conducted and a combination between **Butler** and **Uematsu et al** make the rejections smoother.

The objected claimed limitations of claim 2, 8, 12, 16, 23 and 27 are not written into the other independent claims.

Conclusion

4. Claims 2-4, 8-10, 12, 13, 16, 23-25 and 27 are allowed over the prior art.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Natsume et al discloses a monopulse radar apparatus for detection object comprising planar array antenna elements, each includes an amplifier and transmitting antenna.

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[US 6,337,656]

Bjornholt et al discloses an apparatus for the detection of any intruder passing through an electronic fence, which is formed by a millimeter wave radar and a plurality of reflectors placed along the floor of the fence as well as on a structure at its far end.

[US 6,466,157]

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from examiner should be directed to primary examiner **Van Trieu** whose telephone number

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is (571) 272-2972 and Examiner's facsimile No. (573) 273-2972. The examiner can normally be reached on Mon-Fri from 7:00 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mr. Jeffery Hofsass** can be reached on (571) 272-2981.



Van Trieu
Primary Examiner
Date: 1/12/06